

PARTS LIST AND DESCRIPTION (CONTINUED)  
(When ordering parts, state Model, Part Number, and Description.)

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
F1	2A Quick-Acting	2800-001	(1)	AGC-2	HRK	312002	150145

(1) Part of DC Power Cord.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	2200-301	(10.695MHz) FFLY048001 (FL-048)
CF2	Filter	2200-302	(455kHz) FFLY06600 (FL-066)
D301	LED	2000-343	XMT-RED (1.91V @ 4.8mA) REC-GREEN (1.96V @ 10mA) (TRLG-101)(MK-15-31)
D304	LED	2000-306	Channel Indicator Tens & Units (Each Segment supplied with 2.0V @ 7mA) (UR-202)(MK-15-30)
J1	Jack	1100-024	Mic (JK-127) JJKY127001
J2	Jack	1100-002	Antenna (JK-035) JJKY035001
J3	Jack	1100-021	EXT Sp (JK-089) JJKY089001
J4	Jack	1100-025	Relay Control (JK-126) JJKY126001
J5	Jack	1100-003	DC Power (JK-052) JJKY052001
Mic	Mic & Speaker	3200-008	Mic-Speaker Assembly (MK-118)
P301	Plug		Mic
RY1	Relay	2400-004	Power (412 Ohm) (RL-031) ZRLY031001
RY2	Relay	2400-004	XMT (412 Ohm) (RL-031) ZRLY031001
S301	Switch		Power (Part of VR301)
S302	Switch	300-019	Off/ANL (KSR-112A) (MK-15-21)
S303	Switch	3000-019	CH9/Off (KSR-112A) (MK-15-21)
S304	Switch	3000-019	Channel Lock On/Off (MK-15-21) (KSR-112A)
S305	Switch	3000-017	Channel Select (Seesaw) Down/Up (PM-00239)(MK-15-19)
S306A	Switch	3000-018	XMT/Rec (Part of Mic Assembly) (Push Type SW-00831)
S306B	Switch		XMT/Rec (Part of Mic Assembly) (push Type SW/00831)
XT	Crystal	2100-013	(10.240MHz) (QX-074) QQXY074001
	Cord	2700-201	Mic Cord (PM-00251)
	Cord	2700-001	DC Power (W-070229)
	P.C. Board		Main (PC-590AA)
	P.C. Board	3500-058	Mic Jack PC-591AA

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Cabinet, Front	3200-101	Knob	1300-023
Cabinet, Rear	3200-102	Knob, Hooked, Mic	3200-104
Cover Bottom (MOBP305550)	3300-129		

WIRING DATA

Cable (Speaker)(Unshielded).....	Use BELDEN No. 8782 (AWG24)(4 colors)
Shielding Strap.....	Use BELDEN No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use BELDEN No. 8524 (AWG22)(13 colors)
Hook-up Wire (Shielded).....	Use BELDEN No. 8401 (Braided Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8421 (Spiral Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8737 (Spiral Shield)(2 conductor)(AWG22)



PHOTOFACT® with

CIRCUITRACE®

For Supplier Address See PHOTOFACT Index

NOTE

Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.  
(Refer to FCC Rules and Regulations Part 95, Subpart C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.



MODEL TRC-425

MANUFACTURER'S SPECIFICATIONS

RECEIVER

Frequency Coverage	: All 40 channels 26.965 to 27.405 MHz
Sensitivity	: Better than 0.5 $\mu$ V for 10 dB S/N
Adjacent Channel Rejection(10kHz)	: 70 dB nominal
Audio Distortion at 1000 Hz	: Less than 10% at 4 watts output
Spurious Response	: 70 dB nominal
Spurious Signal Radiation	: Less than 5 $\mu$ V (FCC limitation)
I.F.	: 10.695 MHz 455 kHz
Squelch	: Adjustable from 0.25 $\mu$ V to 1 mV

TRANSMITTER

Frequency Coverage	: All 40 channels 26.965 to 27.405 MHz
Power Output	: 4 watts maximum
Modulation	: 90 - 100%
Spurious Signal Radiation	: 60 dB down or better (FCC limitation)
Emission	: 6A3
Frequency Tolerance	: 0.002%
Antenna Impedance	: 50 ohms
Power Requirements	: 12 Volts, DC, negative or positive ground; 20 watts
Current Drain	: 200-1700 mA (from no signal receive to full modulation on transmit)
Dimensions	: 2-3/16 x 6-5/8 x 8-1/2 (5.5 x 16.7 x 21.5 cm) HWD
Weight	: 3 lbs. 5 ozs. (1.5 kg)

Courtesy of the Manufacturer

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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## ALIGNMENT INSTRUCTIONS

**CAUTION:** Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period. Adjustments made with 13.8 volt DC input. Connect low sides of test equipment to ground unless specified otherwise. Connect 50-ohm dummy load or antenna before keying transmitter. Connect microphone.

Suggested Alignment Tools: GC ELECTRONICS:  
L101 thru L103, L804 thru L807, L901, L903 ..... 9440  
T301 thru T303, L801 thru L803 ..... 5000, 5009, 8276, 8728, 9089  
L905 ..... 9300, 9302, 9304

## SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope to TP803 (L801 Secondary).	Ch. 19	L801	Adjust for maximum RF (.35 volts p-p typical). (See Figure 1.)
Input of frequency counter to TP803 (L801 Secondary).	Ch. 19	CT801	Adjust for 10.240MHz.
Input of DC meter to TP801 (Junction of R811 and R813).	Ch. 1	L802	Adjust for 1.60 volts. Check for approx. 3.00 volts on channel 40.
Input of oscilloscope to TP802 (L803 Secondary).	Ch. 19	L803	Adjust for maximum RF (.30 volts p-p typical). (See Figure 2.)
Input of frequency counter to TP802 (L803 Secondary).	Ch. 1		Check for 16.270MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP804 (IC802 Pin 7).	Ch. 1 XMT		Check for 16.725MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP805 (Q803 Gate).	Ch. 19 XMT	L804	Adjust for maximum RF (.12 volts p-p typical). (See Figure 3.)
Input of frequency counter to TP805 (Q803 Gate).	Ch. 1 XMT		Check for 26.965MHz. If necessary readjust CT801 for correct frequency. Check all channels. (See Truth Chart for correct frequencies.)

## RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Set generator output low enough to prevent AGC limiting. Preset controls as follows, unless otherwise noted: RF Gain Maximum, Squelch MINIMUM, Tone Fully CW, Ch. 9/Scan/Out Out, NB/ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to TP806 (Q302 Base). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T303, T302	Adjust for maximum audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T301, L103, L102, L101	Adjust for maximum audio output. Readjust T302 and T303 for maximum.

## RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Preset controls as follows, unless otherwise noted: RF Gain Maximum, Squelch MINIMUM, Tone Fully CW, Ch. 9/Scan/Out Out, NB/ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1uV.	Ch. 19 Volume Maximum	VR7	AGC Set VR1 to midrange. Adjust for 2.00 volts RMS (.5 watt) audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output .5uV.	Ch. 19	VR1	RF GAIN RANGE Adjust for best signal to noise ratio.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19 Squelch Maximum	VR5	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR3	RX SIGNAL METER Adjust for 9 on RX Signal scale of meter.

## TRANSMITTER ALIGNMENT

Connect a 50-ohm, 25-watt dummy load to antenna connector. NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter. See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19 XMT	L805, L806, L807, L901, L903	Adjust for maximum RF
Input of RF wattmeter to antenna input.	Ch. 19 XMT	L905	Adjust for 4.0 watts RF output maximum.

## TRANSMITTER ADJUSTMENTS

Connect a 50-ohm, 25-watt dummy load to antenna connector. NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter. See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 20mV audio signal at mic input.	Ch. 19 XMT	VR8	AMC Adjust for 100% modulation maximum. (See Figure 4.)
Input of RF wattmeter to antenna input.	Ch. 19 XMT	VR11	TX PWR METER At 4.0 watts RF output adjust for 4 on TX PWR scale of meter.
Connect a 150 ohm non-inductive, 5 watt load to antenna input.	Ch. 19 XMT SWR/CAL/S-RF CAL	VR9	SWR METER Adjust SWR CAL control to CAL mark on meter. Switch to SWR and adjust VR9 for 3 on SWR scale of meter.

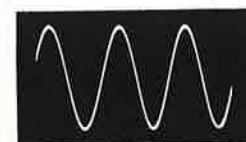


FIGURE 1

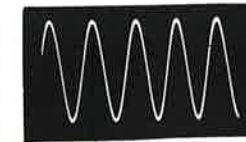


FIGURE 2

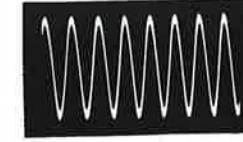


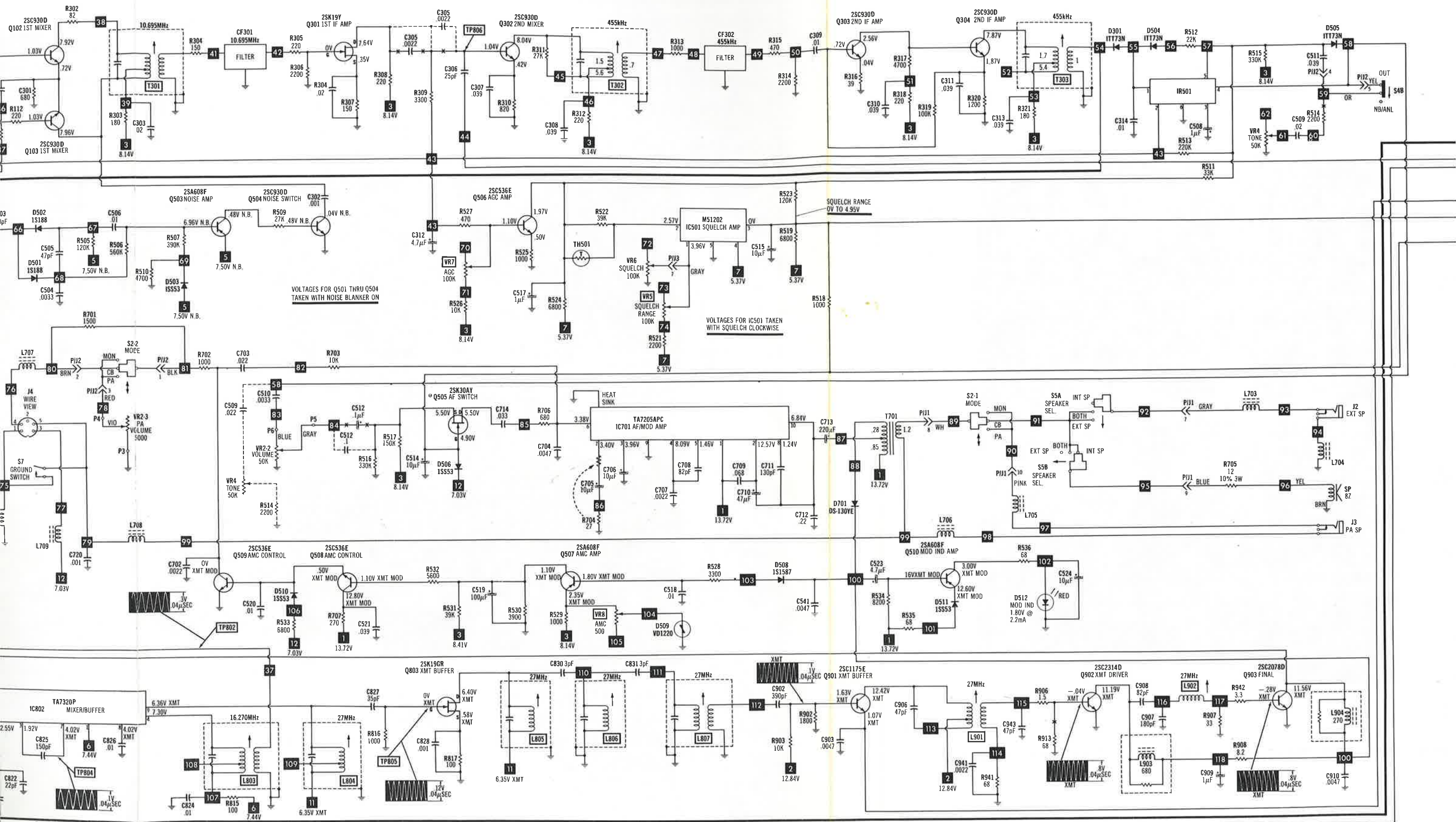
FIGURE 3



FIGURE 4

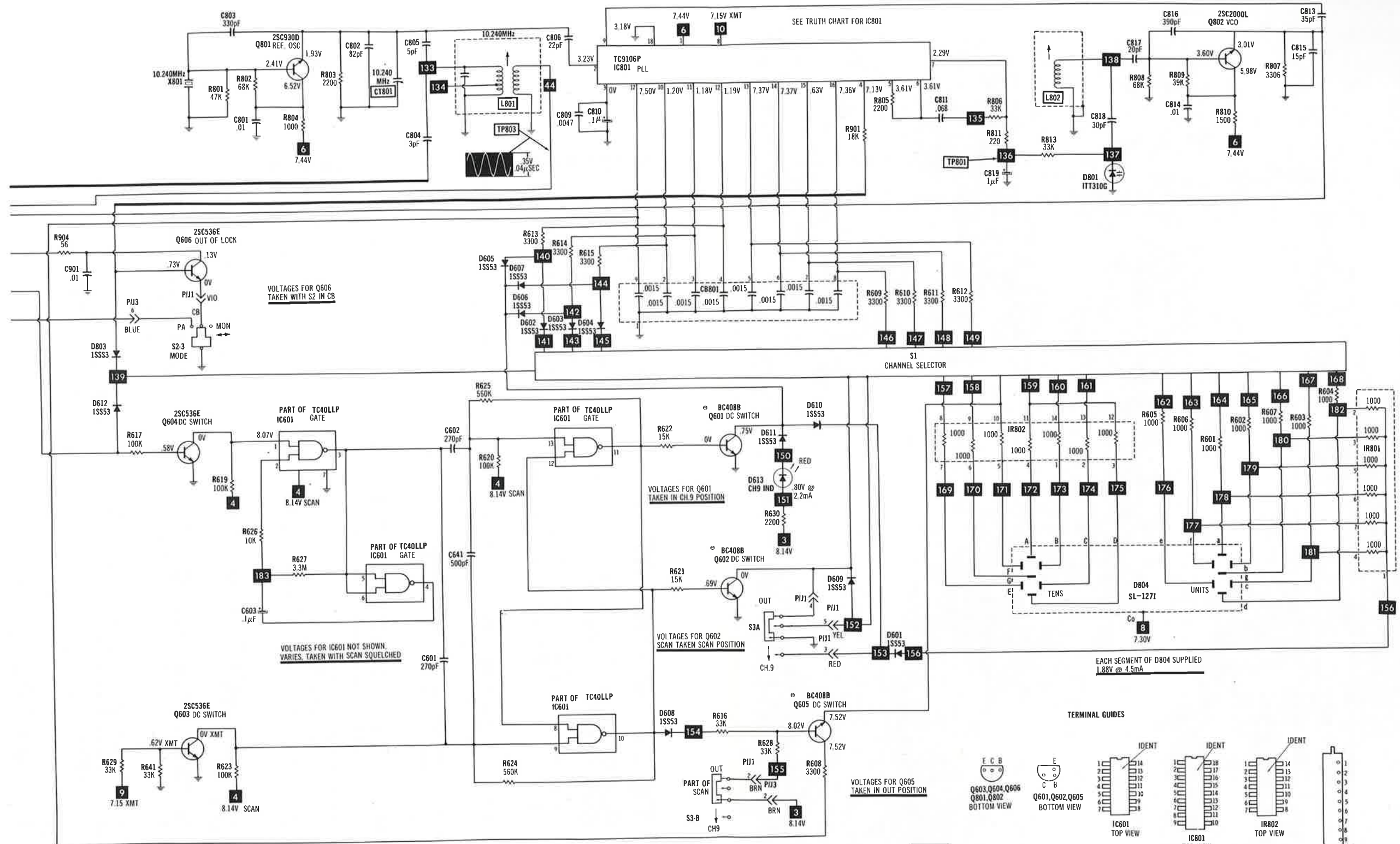






MAIN SCHEMATIC

REALISTIC MODEL TRC-425



- Circuitry not used in some versions.
- Circuitry used in some versions.
- ⊗ Nominal value
- ⊕ Ground
- ⏏ Chassis
- ⦿ See parts list
- ▽ Common tie point

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
WITH **CIRCUITRACE**  
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Waveforms and Voltages taken in Channel 19  
with switching in receive unless noted.  
Item numbers in rectangles appear in the  
alignment/adjustment instructions.  
Supply voltage maintained as shown at input.  
Voltages measured with digital meter, no signal.  
Controls adjusted for normal operation.  
Terminal identification may not be found on unit.  
Resistors are 1/2W or less, 5% unless noted.  
Value in ( ) used in some versions.  
Arrow head(s) at coils and transformers  
indicates accessibility of tuning slug(s).

## PLL & SCAN SCHEMATIC

